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November 26, 2018

CONFIDENTIAL MATERIALS ATTACHED

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Re: REQUEST FOR CONFIDENTIAL TREATMENT
Reliability and Continuity of Communications Networks, Including Broadband Technologies, PS Docket No. 11-60
Verizon Response to November 6, 2018 Letter from Lisa M. Fowlkes, Chief, Public Safety and Homeland Security Bureau

Dear Ms. Dortch:

Attached is Verizon's response to the November 6, 2018 Letter from Lisa M. Fowlkes, Chief of the Public Safety and Homeland Security Bureau (the "Letter"), requesting an after-event summary for each event in which Verizon used the voluntary Wireless Resiliency Cooperative Framework (the "Framework") in 2017 and 2018.

In accordance with the Letter's instructions, Verizon hereby requests confidential treatment of the information designated "[**BEGIN CONFIDENTIAL**]" and "[**END CONFIDENTIAL**]" in the response. (A redacted version of this response is being submitted in the above-referenced docket via ECFS.) The information for which Verizon seeks confidentiality falls within the requirements of Section 0.459 of the Commission's rules and Exemption 4 of the Freedom of Information Act ("FOIA"). In support of this request, Verizon provides the following information pursuant to Sections 0.457(d)(2) and 0.459(b) of the Commission's Rules.

1. Extent of Nondisclosure Requested. Verizon is requesting confidential treatment of the information designated "[**BEGIN CONFIDENTIAL**]" and "[**END CONFIDENTIAL**]" in the response. The information in the response generally relates to commercial agreements between Verizon and other entities, that are subject to non-disclosure agreements or that Verizon does not otherwise disclose publicly. It also includes information regarding Verizon's internal policies and practices concerning network reliability and continuity of operations.

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2. Proceeding/Reason for Submission. Verizon is voluntarily submitting the enclosed information in response to the November 6, 2018 letter from Public Safety and Homeland Security Bureau Chief Lisa M. Fowlkes to William H. Johnson, Senior Vice President at Verizon.¹ The letter requests “an after-event summary for each event in which Verizon used the Framework in 2017 and 2018.” The Framework is a voluntary, multi-pronged approach to promote network resiliency and situational awareness to which Verizon and other wireless service providers have committed.²
3. Nature of Confidential Information. The information contains commercially sensitive information that may be withheld from public disclosure under FOIA Exemption 4. The Commission has long recognized that, for purposes of Exemption 4, “records are ‘commercial’ as long as the submitter has a commercial interest in them.” *Robert J. Butler*, 6 FCC Rcd 5414, 5415 (199), citing *Public Citizen Health Research Group v. FDA*, 704 F.2d 1280, 1290 (D.C. Cir. 1983); *American Airlines v. National Mediation Board*, 588 F.2d 863, 868 (2d Cir. 1978). The information is “commercial” in nature.³ It includes information relating to Verizon’s network performance, roaming agreements, business practices and methods, and commercially sensitive and confidential arrangements with other parties. Further, the information is confidential in that it “would customarily not be released to the public.”⁴ Courts have elaborated that material “is ‘confidential’ ... if disclosure of the information is likely to have either of the following effects: (1) to impair the government’s ability to obtain necessary information in the future; or (2) to cause substantial harm to the competitive position of the person from whom the information was obtained.”⁵ Both of these considerations apply in this instance, as further explained in point (5) below. The information also is related to the information provided in outage reports that the Commission treats as presumptively confidential in order to prevent harm to critical infrastructure and to encourage sharing of sensitive information with Commission staff.⁶

¹ See <https://docs.fcc.gov/public/attachments/DOC-354963A5.pdf>.

² See *Improving the Resiliency of Mobile Wireless Communications Networks; Reliability and Continuity of Communications Networks, Including Broadband Outages*, Order, 31 FCC Rcd 13745 (2016) (describing Framework’s voluntary approach and terminating the underlying rulemaking proceeding).

³ See *Board of Trade v. Commodity Futures Trading Comm’n*, 627 F.2d 392, 403 & n.78 (D.C. Cir. 1980) (courts have given the germs “commercial” and “financial,” as used in 5 U.S.C. § 552(b)(4), their ordinary meanings).

⁴ *Critical Mass Energy Project v. NRC*, 975 F.2d 871, 873 (D.C. Cir. 1992), *cert. denied*, 113 S.Ct. 1579 (1993).

⁵ *National Parks and Conservation Ass’n v. Morton*, 498 F.2d 764, 770 (D.C. Cir. 1974) (footnote omitted); see also *Critical Mass*.

⁶ 47 C.F.R. § 4.2; *New Part 4 of the Commission’s Rules Concerning Disruptions to Communications*, 19 FCC Rcd 16803, 16855 and 16836-37 (2004) (“*Part 4 Order*”); *MSNBC*

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4. Competitiveness of Market. The commercial information provided in the response derives from and relates to Verizon's provision of mobile wireless services and thus concerns a service "that is subject to competition." 47 C.F.R. 0.459(b)(4); *see Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services*, 32 FCC Rcd 8968 (2017).
5. Harm from Disclosure. The commercial information in the response is confidential because its release would likely cause competitive harm to Verizon. The redacted information is commercial and confidential. The Commission has recognized that disclosure of such information relating to business operations, practices and methods and related information can cause competitive harm, and is thus competitively sensitive and subject to Exemption 4.⁷ The Commission has also recognized the competitive harm that results from the disclosure of outage-related information like this, in particular "the methods and procedures for dealing with outages."⁸ And as with outage reports, public disclosure of this information would make communications providers and other stakeholders less willing to provide detailed information, and thus "less forthright in the information submitted to the Commission at a time when it is especially critical that [it] obtain full and accurate information in order to prevent harm to the communications infrastructure."⁹ This is particularly the case where, as here, information is being provided relating to a voluntary program. Finally, disclosure of information such as this could give service providers incentives to *not* seek or provide mutual aid or roaming during disasters—which itself would undermine the Framework's effectiveness.¹⁰
6. Measures Taken to Prevent Unauthorized Disclosure. Verizon treats the information subject to this request as confidential and subject to non-disclosure agreements, and does not publicly disclose this information. Verizon also limits the internal circulation of this information to only those with a need-to-know basis.
7. Public Availability and Previous Disclosure to Third Parties. The information for which confidentiality is sought is not made available to the public. Information relating to another individual service provider named in the filing has been disclosed to that individual service provider, but Verizon has not otherwise disclosed the information to other parties.

INTERACTIVE NEWS, LLC On Request for Inspection of Records, Memorandum Opinion and Order, 23 FCC Rcd 14518, ¶ 16 (2008) ("MSNBC").

⁷ See, e.g., *Josh Wein, Warren Communications News, Requested for Inspection of Records*, Memorandum Opinion and Order, 24 FCC Rcd 12347, 12352-53 (2009).

⁸ See MSNBC ¶¶ 14-16.

⁹ See MSNBC ¶ 15 (citing *Part 4 Order*, 19 FCC Rcd at 16836-37).

¹⁰ See MSNBC ¶ 17 (noting that "FOIA Exemption 4 protects other governmental interests, such as compliance and program effectiveness").

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8. Requested Duration of Nondisclosure. The enclosed information should never be released for public inspection, as it contains commercially sensitive, confidential information, the release of which could adversely affect Verizon's competitive position.

For the foregoing reasons, Verizon respectfully requests that the Commission withhold this information from public inspection.

Should you need additional information with regard to this request, please contact me at (202) 515-2444 or robert.morse@verizon.com.

Sincerely,

A handwritten signature in blue ink that reads "Robert Morse". The signature is fluid and cursive, with the first name "Robert" and last name "Morse" clearly distinguishable.

Attachments

ec: Jeffery.Goldthorp@fcc.gov (redacted and unredacted versions)
Renee.Roland@fcc.gov (redacted and unredacted versions)

**SUBJECT TO REQUEST FOR CONFIDENTIAL TREATMENT
REDACTED VERSION**

**VERIZON'S RESPONSE TO LETTER FROM LISA M. FOWLKES, CHIEF, PUBLIC
SAFETY AND HOMELAND SECURITY BUREAU
TO WILLIAM H. JOHNSON, SR. VICE PRES., VERIZON
PS DOCKET NO. 11-60
NOVEMBER 26, 2018**

At Verizon, we pride ourselves on the reliability of our services and strength and resiliency of our network. We understand that our customers, including public safety customers, depend heavily on us during times of natural disaster. To meet our customers' expectations, we employ a comprehensive approach to preparing for and addressing natural and other disasters, which includes preparing for disasters before they hit; communicating with our customers and government policyholders before, during, and after such disasters; and restoring and repairing our networks as quickly and safely as possible. The Wireless Resiliency Cooperative Framework (the "Framework") is an important component of our overall effort to restore our networks for customers who depend on them and to assist other carriers in times of need. The Framework has been in place for two and a half years, and Verizon agrees that the Commission and industry should monitor its effectiveness and consider the need for improvements.¹ To help aid in that effort, we provide responses below to the Bureau's inquiries in the November 6th letter.

Verizon's focus on network resiliency and recovery and reliance on the Framework has helped minimize customer disruption even in the face of historic storms and disasters. For each of the six events that the Commission asks about relevant to Verizon's service areas, Verizon returned its network and services to normal throughout all or nearly all of the affected areas in just a few days.² After Hurricane Harvey, Verizon never lost service at more than 4 percent of its cell sites in hard-hit Harris County, Texas (where Houston is located), and was operating at or near 100 percent of capacity in the hardest-hit rural coastal counties within 3-4 days after landfall (areas where, in the immediate aftermath of the storm, 30-100 percent of sites were out of service). After Hurricane Irma, nearly all affected counties were at or near 100 percent within 3 days after landfall, and in the few hardest-hit coastal counties within 5 days after landfall, despite the enormous challenges posed by limited access to site locations. Hurricanes Lane and Nate barely affected Verizon's network at all. Nearly all affected counties after Hurricane Florence were at or near full capacity within 3-4 days after landfall, and the few hardest-hit counties were nearing full capacity within 1 or 2 days thereafter. In the Florida counties hit hardest by Hurricane Michael, we faced the most difficult challenges to restore our network that we've faced to date, as many large sections of fiber infrastructure were destroyed and required replacement as well as splicing. These challenges rendered that event unique among Verizon's experiences in restoring our networks after hurricanes in 2017-18. Outside of those hardest hit Florida counties, our performance met or exceeded our experience from prior storms. For those hardest hit counties, difficulties in restoring and maintaining the fiber used for backhaul in the area extended the duration of the outages by several days.

¹ See Verizon Comments, PS Docket No. 11-60, at 2-4 (July 16, 2018).

² Verizon is not a facilities-based wireless service provider in Puerto Rico or the US Virgin Islands, where Hurricane Maria made landfall.

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As Verizon's experience in each of these events illustrates, different disasters present unique challenges and we learn from each storm and incorporate those lessons to be better prepared for the next event. For example, Verizon faced challenges obtaining access to out-of-service sites and restoring backhaul in Hurricanes Harvey and Irma (for different reasons): widespread flooding during Harvey and downed electrical grid and trees for Irma. The magnitude of the destruction of Hurricane Maria to networks and the infrastructure needed to restore service illustrated for Verizon the potential benefits of mutual aid. And Hurricane Michael showed that other stakeholders' restoration efforts can overwhelm even highly redundant fiber and aggressive 24/7 repair efforts, particularly when there were numerous and repeated cuts made to our fiber network even after we restored it. And each event, in turn, resulted in lessons learned that are incorporated into Verizon's practices and resiliency investments going forward.

These responses address each inquiry in the November 6th Letter and are organized based on the applicable ESF-2/DIRS-triggered commitments in the Framework, specifically: (1) the Framework's roaming and mutual aid commitments and (2) the CTIA Best Practices for Enhancing Emergency and Disaster Preparedness and restoration.

I. ROAMING AND MUTUAL AID

The Framework's Roaming and Mutual Aid commitments reflect a careful balance of interests that account for, among other things, technical feasibility, a provider's need to prioritize service reliability for its own customers, and ensuring that all wireless providers have appropriate incentives to make reliability investments in their own networks. The commitments provide as follows:

Providing for Roaming Under Disasters (RuDs). Wireless carriers commit to working with other wireless carriers to implement reasonable roaming arrangements for the duration of an event if existing roaming arrangements and call processing methods do not already achieve it. RuDs would apply when the National Response Coordination Center (NRCC) activates Emergency Support Function # 2 (ESF-2) for a given emergency or disaster and the FCC activates the electronic Disaster Information Response System (DIRS), where: (i) a requesting carrier's network has become inoperable and the requesting carrier has taken all appropriate steps to attempt to restore its own network, and (ii) the home carrier has determined that roaming is technically feasible and will not adversely affect service to the home carrier's own subscribers. Such arrangements will be limited in duration and contingent on the requesting carrier taking all possible steps to restore service on its own network as quickly as possible.

Fostering Mutual Aid During Emergencies. Wireless carriers commit to the sharing of physical assets and necessary consultation where feasible during and after disasters through establishing mutual aid arrangements with other wireless carriers. As noted above, carriers should first manage their own network needs during an emergency, and then provide aid to others, if requested. Mutual aid arrangements may be triggered

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when the NRCC activates ESF-2 for a given emergency or disaster and the FCC activates the electronic DIRS.

Verizon has fully met these commitments, and we use them as part of our comprehensive approach to maintaining the most reliable network in the face of disasters.

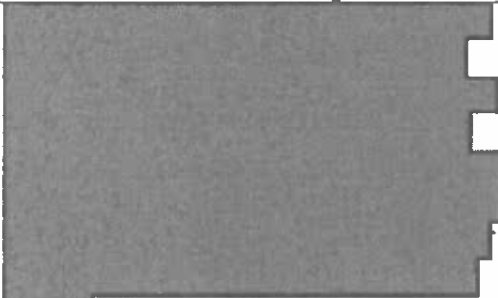
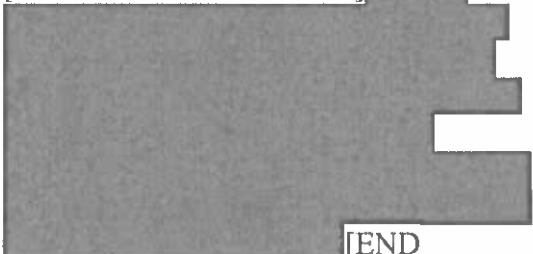
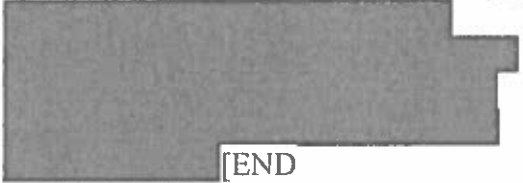


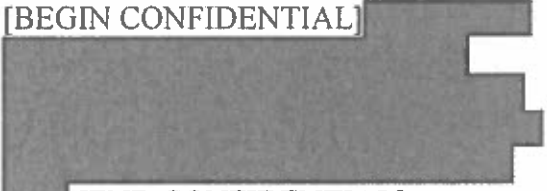
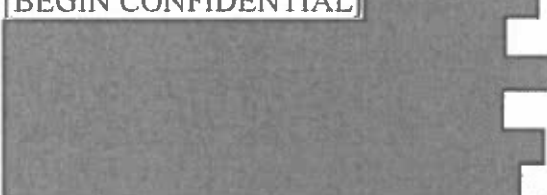
- 1. Identify each event by date, location,³ and type of disaster and include specific information related to the way Verizon fulfilled the reasonable roaming and mutual aid prongs of the Framework.*

The following table addresses each of the requested information points. Roaming arrangements are further broken down by technology to reflect the types of roaming arrangements that are feasible and the technical limitations for each given Verizon's device portfolio. Note also that mutual aid activities can be initiated informally by service providers' personnel in the field, so this table likely understates the extent to which Verizon and other service providers cooperated with one another in service restoration efforts.

Event	Mutual Aid	Roaming
Hurricane Harvey Aug 25-Sept 5, 2017 Counties in LA, TX	Due to the availability of resources and the accessibility of staging areas in close proximity to the affected area for all service providers, there was little demand for mutual aid efforts. Verizon nonetheless [BEGIN CONFIDENTIAL] [REDACTED] [END CONFIDENTIAL] And Verizon was prepared to offer mutual aid as needed through coordination efforts via DHS's National Coordination Center for Communications (NCC) and state and local emergency management coordination efforts.	Verizon had strong network performance during this event. [BEGIN CONFIDENTIAL] [REDACTED] [END CONFIDENTIAL] [BEGIN CONFIDENTIAL] [REDACTED] [END CONFIDENTIAL] [BEGIN CONFIDENTIAL] [REDACTED] [END CONFIDENTIAL] [BEGIN CONFIDENTIAL]

³ Dates and locations are based on first and last days and covered counties of the Commission's DIRS activations for each event.

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Event	Mutual Aid	Roaming
		 [END CONFIDENTIAL]
<i>Hurricane Irma</i> Sept 6-18, 2017 Counties in AL, FL, GA, PR, USVI	[BEGIN CONFIDENTIAL]  [END CONFIDENTIAL]	Same as Hurricane Harvey above.
<i>Hurricane Maria</i> Sept 20, 2017- Mar 23, 2018 Counties in PR, USVI	Verizon is not a facilities based service provider in either Puerto Rico or the United States Virgin Islands. Verizon nevertheless contributed deployable assets to [BEGIN CONFIDENTIAL]  [END CONFIDENTIAL] and offering technical assistance to the industry's recovery efforts. Verizon also coordinated a short-term Commission-approved spectrum lease [BEGIN CONFIDENTIAL]  [END CONFIDENTIAL] to facilitate the use of a femtocell solution to improve communications for local authorities.	Verizon is not a facilities based service provider in either Puerto Rico or the United States Virgin Islands. Verizon [BEGIN CONFIDENTIAL]  [END CONFIDENTIAL] [BEGIN CONFIDENTIAL]  [END CONFIDENTIAL] [BEGIN CONFIDENTIAL] 


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Event	Mutual Aid	Roaming
		[REDACTED] [END CONFIDENTIAL]
<i>Hurricane Nate</i> Oct 8-9, 2017 Counties in AL, FL, MS	Verizon did not seek mutual aid assistance and was not asked to provide any. Hurricane Nate had very limited impact on wireless communications networks in the area, so service providers had little if any demand for mutual aid.	Same as Hurricane Harvey above. Hurricane Nate had little impact on wireless communications networks in these counties, so service providers would have had little if any demand for disaster-specific roaming.
<i>Hurricane Lane</i> Aug. 23-26, 2018 Counties in HI	Verizon did not seek mutual aid assistance and was not asked to provide any. Hurricane Lane had very limited impact on wireless communications networks in Hawaii, so service providers had little demand for mutual aid.	Same as Hurricane Harvey above. Hurricane Lane had little impact on wireless communications networks in Hawaii, so service providers would have had little if any demand for disaster-specific roaming.
<i>Hurricane Florence</i> Sept. 13-24, 2018 Counties in GA, NC, SC, VA	Due to the availability of resources and the accessibility of staging areas in close proximity to the affected area for all service providers, there was generally limited need for mutual aid efforts. Service providers shared information resources with one another to coordinate access to storm-affected areas. And Verizon was prepared to offer mutual aid as needed through coordination efforts via DHS's National Coordination Center (NCC) and state and local emergency management coordination efforts.	Same as Hurricane Harvey above.
<i>Hurricane Michael</i> Oct. 10-26, 2018 Counties in AL, FL, GA	Providers did not widely need mutual aid via the sharing of physical and personnel assets after the storm. The storm had its greatest impact in a compact geographic area and nearby staging areas were widely available. We worked extensively with the Framework signatories, however, to coordinate access to the affected areas, and with [REDACTED] [END CONFIDENTIAL] to help restore part of our fiber backhaul.	CDMA. Verizon made no requests for additional CDMA coverage. LTE. Verizon made no requests for additional LTE coverage. UMTS. [REDACTED] [END CONFIDENTIAL] [REDACTED]

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Event	Mutual Aid	Roaming
		<div>[REDACTED] [END CONFIDENTIAL]</div> <div>[BEGIN CONFIDENTIAL] [REDACTED]</div> <div>[END CONFIDENTIAL]</div> <div>[BEGIN CONFIDENTIAL] [REDACTED]</div> <div>[END CONFIDENTIAL]</div>
		<div>[REDACTED] [END CONFIDENTIAL]</div> <div>[BEGIN CONFIDENTIAL] [REDACTED]</div> <div>[END CONFIDENTIAL]</div> <div>[BEGIN CONFIDENTIAL] [REDACTED]</div>

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Event	Mutual Aid	Roaming
		 [END CONFIDENTIAL]

2. *Include a detailed list of both mutual aid and roaming agreements that Verizon had in place for each of the events, the names of the parties to the agreements, whether Verizon modified these agreements depending on the scope, location, and or duration of the disaster, how Verizon operationalized each of these agreements, and what, if any, impediments Verizon faced in implementing or honoring these agreements.*

Mutual Aid.

Service providers' mutual aid arrangements generally are implemented on a case-by-case basis through informal discussions between providers' network operations and continuity of operations personnel, rather than through formal written agreements. Service providers coordinate these efforts by participating in venues such as DHS/FEMA's National Coordinating Center for Communications ("NCC") and state and local emergency management agencies, and on an ad hoc basis through direct discussions among service providers' personnel "on the ground." Even so, participation in bodies like the NCC entails a commitment to support NCC's function of "shar[ing] critical communications information and advice in a trusted environment to support the NCC's national security/ emergency preparedness communications mission."⁴ And cooperation with other service providers is a standard component of Verizon's approach to service restoration.

No two disasters are the same, so the scope, location, and duration of the disaster necessarily affected the extent of any mutual aid provided by (or for) Verizon. Verizon faced no impediments in implementing or honoring the mutual aid requests that other providers asked of us or that Verizon asked of other providers.

Roaming.

By way of background, agreements to support roaming are generally not disaster-specific and vary by technology. As in any roaming arrangement, in order to reliably serve other providers' customers in disaster-affected areas without adversely affecting their own customers, providers must first resolve the overarching important issues associated with automatic roaming network-wide, such as handoff between networks, ensuring that handsets select the right network in the right area, and capacity management. This effort typically takes several months of planning and testing to understand the impact of opening roaming in one area on customers in other areas, and is necessary so that a user's handset will (1) reliably operate on another service provider's home network and (2) in areas of coextensive coverage, connect to the home network for the carrier directly serving the customer and for which the handset is optimized.

⁴ See <https://www.dhs.gov/national-coordinating-center-communications>

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Verizon has implemented these arrangements comprehensively with other service providers for our CDMA network and for several LTE roaming partners. We also have some arrangements to support our customers with UMTS-capable devices, and we are working to implement arrangements for other providers' LTE handsets, as follows:

- CDMA. [BEGIN CONFIDENTIAL]



[END CONFIDENTIAL]

- UMTS. [BEGIN CONFIDENTIAL]



[END CONFIDENTIAL].

- LTE. [BEGIN CONFIDENTIAL]

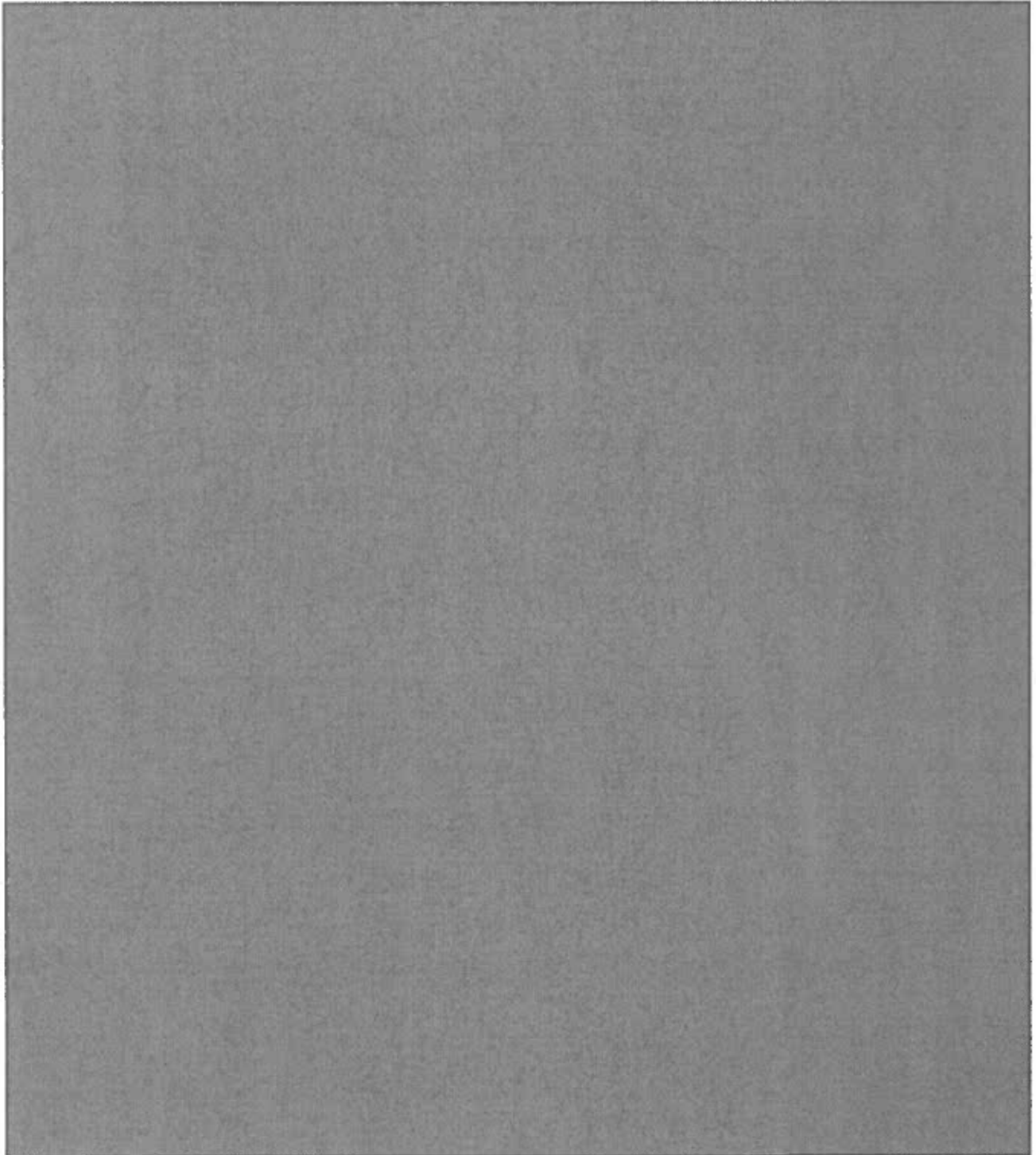


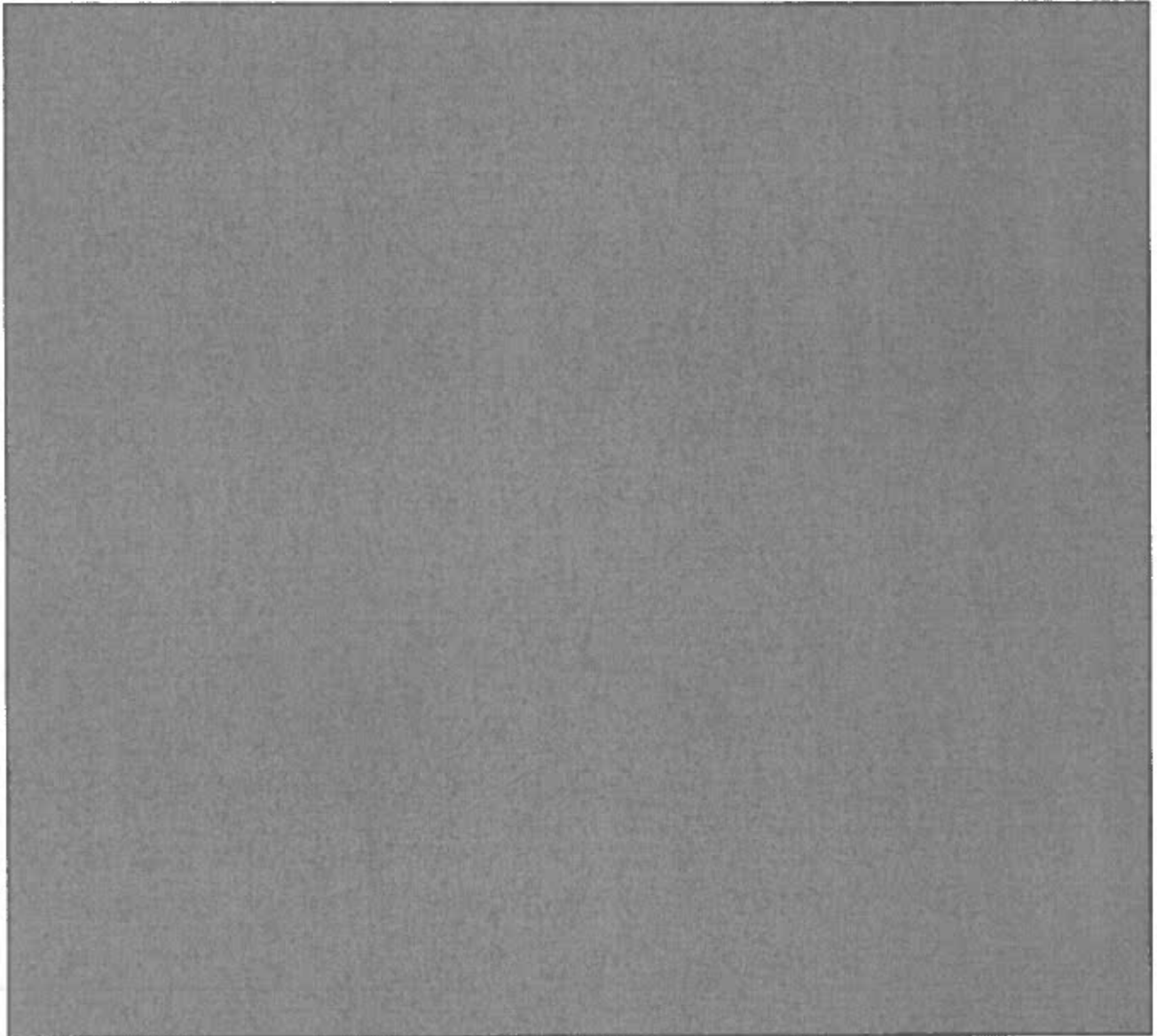
[END
CONFIDENTIAL]

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Verizon had roaming agreements in place for each of the events with the following service providers [BEGIN CONFIDENTIAL [REDACTED]
[REDACTED] [END CONFIDENTIAL]:

[BEGIN CONFIDENTIAL]





[END CONFIDENTIAL]

3. *Describe any instances in which either Verizon or another carrier declined a request for mutual aid or roaming and the surrounding circumstances.*

We are not aware of any such instances. In our experience, Framework participants have worked with each other in good faith to provide assistance when needed in areas hit by natural disasters.

II. CTIA-LOCAL GOVERNMENT BEST PRACTICES

Describe the extent to which Verizon implemented the CTIA Best Practices for Enhancing Emergency and Disaster Preparedness and Restoration during each event.

The Framework's original signatories met their commitment to "convene with a select number of local government representatives' public safety subject matter experts to develop best practices to facilitate coordination before, during, and after emergencies and disasters in order to maintain and restore wireless service continuity." The Best Practices that arose from this collaborative process and that relate to wireless service providers are summarized below.

- *Planning Before Disasters and Emergencies Occur.* These wireless-specific commitments relate to:
 - coordination with local governments to waive local restrictions on service restoration efforts, if needed, and notification systems to provide situational awareness to local stakeholders on outage and restoration information;
 - coordination with localities to establish staging areas; and
 - development of standardized credentialing methods to enable service providers and their designees to access disaster-affected areas.
- *Coordination During and After a Disaster Event.* These wireless-specific commitments relate to:
 - development of a playbook or checklist to guide service providers access to affected areas;
 - participating in local EOC coordination efforts;
 - obtaining necessary licenses and permits and other close coordination and robust information sharing with localities to facilitate access to affected areas; and
 - robust notification and other information sharing systems to apprise local governments of service restoration status.
- *Creating Education Awareness Campaigns.* These wireless-specific commitments relate to:
 - providing appropriate contact information with one another and with local government officials;
 - sharing information about available resources that may be used;
 - participation in mock exercises; and
 - supporting consumer education and awareness efforts.

Verizon's use of these Best Practices for each of the seven events is summarized below. Whether and to what extent each of these commitments was applicable to a particular disaster is necessarily event-specific. As CTIA explained, "individual coordination efforts will vary depending upon a number of factors, including the scope of the emergency or disaster, the nature of service providers' networks, the individualized circumstances involving local authority to

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perform the coordination activities, and the resources available to the parties.”⁵ In each event, though, the Best Practices were used to the extent applicable and where helpful to service restoration efforts.

1. Hurricane Harvey

- *Planning Before Disasters and Emergencies Occur.*
 - Waiving local restrictions. Verizon did not encounter local restrictions on access and restoration activities necessitating any sort of formal waiver.
 - Notification Systems. Verizon worked directly with emergency management authorities in Harris County, Texas to share information and provide regular updates on the status of recovery efforts.
 - Staging areas. In coordination with state and local authorities, Verizon staged deployable equipment in areas west of the affected coastal areas and was prepared for rapid deployment as needed in hard-hit areas. While Verizon did not need to immediately use deployable assets such as Cells on Wheels (COWs), Cells on Light Trucks (COLTs) or Satellite Pico Cells on a Trailer (SPOTs) in the affected areas, we prepositioned that equipment to supplement service in areas that may have needed extra network capacity and to replace flooded sites as the waters receded.
 - Credentialing. Through the NCC and FEMA, Verizon obtained the credentialing documentation needed to enable our technicians and other personnel to access the flooded areas. State and local governments were good partners in this event.
- *Coordination During and After a Disaster Event.*
 - Playbook/Access Checklist. For all these events our standard procedures and protocols for obtaining access to affected areas and communicating with local governments, which integrate this type of communication and coordination with state and local government agencies, accomplished the objective of this Best Practice in these events.
 - EOC Participation. Verizon worked directly with emergency management authorities in Harris County, Texas and State of Texas emergency management officials, to share information and provide regular updates on the status of recovery efforts.
 - Licenses/Permits/Coordinating Access. There were no issues obtaining the necessary licenses and permits to engage in restoration activities and obtain access to the affected areas. Access to affected areas was coordinated via EOC participation and the notification systems described above.

⁵ See CTIA-The Wireless Association, *Best Practices for Enhancing Emergency and Disaster Preparedness and Restoration*, <https://api.ctia.org/docs/default-source/default-document-library/best-practices-for-enhancing-emergency-and-disaster-preparedness-and-restoration.pdf>. While the Best Practices were finalized in December 2017—and thus post-dated the 2017 hurricane season—Verizon’s efforts in 2017 reflected many of the Best Practices.

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- Notification/Info Sharing Systems. As noted, Verizon worked directly with emergency management authorities in Harris County, Texas to share information and provide regular updates on the status of recovery efforts.
- *Creating Education Awareness Campaigns*.
 - Point of Contact Information. Verizon confirmed established industry points of contact and lines of communication through venues like the NCC and informal communications. We also followed our standard process of establishing points of contact with relevant state and, where available, local points of contact with responsible emergency management and first responder agencies.
 - Mock Exercises. Verizon's policy is to support preparedness exercises with local authorities when invited to do so, and to conduct internal exercises on an ongoing basis. In 2017-18 those efforts included participating in a hurricane preparedness drill in North Carolina specifically designed to focus on efforts to secure a nuclear reactor. In Florida, we conducted internal exercises in Jacksonville, Tampa, Orlando and Miami. Though Verizon usually participates in annual training in Texas, those exercises were suspended in the 2017-2018 time frame, likely due to the high hurricane activity. Verizon also conducts annual internal exercises, and jointly participates in exercises with other public and private sector stakeholders, including the U.S. Departments of Homeland Security and Energy. And in 2017 and 2018 Verizon conducted Operation Convergent Response in which it demonstrated to hundreds of state and local government agencies how communications capabilities can be employed to improve and maintain communications in disaster situations.⁶
 - Public Information/Alerts. Prior to landfall we encouraged consumers to take preparatory measures.⁷ During and after the event we used social media to update customers on matters like network status, store openings and charging station and other mobile support locations. And we continued public announcements as stores in the re-opened to serve customers in the affected area with Internet access, charging stations, free service to affected customers in the affected area, and other assistance.⁸ Verizon broadcast over a dozen Wireless Emergency Alert ("WEA") messages from the National Weather Service ("NWS") to the counties designated by the NWS. And separate from individual events, Verizon and CTIA (with Verizon's support) work to educate consumers on how best to prepare for disaster events.⁹

⁶ See <https://www.verizon.com/about/news/operation-convergent-response-delivers-technology-action-first-responders>.

⁷ See <https://vzweb.verizon.com/news/were-ready-texas>.

⁸ See <https://www.verizon.com/about/news/verizon-stores-and-running-houston-after-hurricane-harvey>; <https://www.verizon.com/about/news/verizon-retail-stores-south-texas-reopen-after-hurricane-harvey>.

⁹ See <https://www.verizon.com/about/news/staying-connected-hurricane-season-6-tips>; <https://www.ctia.org/consumer-resources/emergency-preparedness>; see also

2. Hurricane Irma

- *Planning Before Disasters and Emergencies Occur.*
 - Waiving local restrictions. Verizon did not encounter local restrictions on access and restoration activities necessitating any sort of formal waiver.
 - Notification Systems. Verizon and the Florida Department of Management Services (“DMS”) have established a practice of providing regularly-scheduled updates on cell site outages in different regions of the state.
 - Staging Areas. Verizon coordinated the use of staging areas as needed with the State of Florida and local authorities.
 - Credentialing. Through the NCC and FEMA, Verizon obtained the credentialing documentation needed to enable our technicians and other personnel to access the affected areas. State and local governments were good partners in this event.
- *Coordination During and After a Disaster Event.*
 - Playbook/Access Checklist. See response for Hurricane Harvey above.
 - EOC Participation. Verizon worked directly with State of Florida emergency management officials to share information and provide regular updates on the status of recovery efforts.
 - Licenses/Permits/Coordinating Access. There were no issues obtaining the necessary licenses and permits to engage in restoration activities and obtain access to the affected areas. Access to affected areas was coordinated via EOC participation and the notification systems described above.
 - Notification/Info Sharing Systems. As noted, Verizon and the Florida DMS have established a practice of providing regularly-scheduled updates on cell site outages in different regions of the state. And we worked directly with State of Florida emergency management officials in that regard as well.
- *Creating Education Awareness Campaigns.*
 - Point of Contact Information. See response for Hurricane Harvey above.
 - Mock Exercises. See response for Hurricane Harvey above.
 - Public Information/Alerts. During and after the event we used social media to update customers on matters like network status, store openings and charging station and other mobile support locations, and the availability of free service to affected customers in the affected area. Verizon also provided public online updates of our recovery efforts.¹⁰ And Verizon broadcast over 150 WEA alerts from the National Weather Service (“NWS”) and a few local authorities to the designated counties.

3. Hurricane Maria

<https://www.ctia.org/news/tips-on-using-a-mobile-device-to-enhance-safety-during-hurricane-harvey>.

¹⁰ See <https://vzweb.verizon.com/news/hurricane-irma-florida-update>.

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While Verizon is not a facilities-based provider in Puerto Rico or the United States Virgin Islands, Verizon nonetheless employed several of the Best Practices in its contributions to the wireless industry's recovery efforts.

- *Planning Before Disasters and Emergencies Occur.*
 - Waiving local restrictions. Verizon did not encounter local restrictions on access and restoration support activities necessitating any sort of formal waiver.
 - Notification Systems. Not applicable – Verizon does not provide facilities-based service in the area.
 - Staging Areas. Verizon's experience with delivering personnel and physical assets to Puerto Rico reflected that, due to the storm's widespread devastation and impact on transportation infrastructure and the island's geography, the use of on-island staging areas in advance would not have been practicable.
 - Credentialing. Through the NCC and FEMA, Verizon obtained the credentialing documentation needed to enable our technicians and other personnel to access the affected areas. Commonwealth and local governments were good partners in this event.
- *Coordination During and After a Disaster Event.*
 - Playbook/Access Checklist. See response for Hurricane Harvey above.
 - EOC Participation. While Verizon was not directly affected, we worked with the local authorities to use a femtocell-based solution to help establish connectivity for the Commonwealth government's EOC.¹¹
 - Licenses/Permits/Coordinating Access. There were no issues obtaining the necessary licenses and permits to engage in restoration activities and obtain access to the affected areas. Access to affected areas was coordinated via EOC participation and the notification systems described above.
 - Notification/Info Sharing Systems. Not applicable – Verizon does not provide facilities-based service in the area.
- *Creating Education Awareness Campaigns.*
 - Point of Contact Information. See response for Hurricane Harvey above.
 - Mock Exercises. See response for Hurricane Harvey above.
 - Public Information/Alerting. Not applicable – Verizon does not provide facilities-based service in the area.

4. Hurricane Nate

Hurricane Nate had very little impact on Verizon's network. A few of the Framework's components were nonetheless relevant to our efforts.

¹¹ See <https://www.verizon.com/about/news/verizon-supports-hurricane-relief-puerto-rico-and-us-virgin-islands-5-million-contribution>.

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- *Planning Before Disasters and Emergencies Occur.*
 - Waiving local restrictions. Verizon did not encounter local restrictions on access and restoration activities necessitating any sort of formal waiver.
 - Notification Systems. Given the short duration and limited impact of this event, this was not an issue.
 - Staging Areas. Given the short duration and limited impact of this event, this was not an issue.
 - Credentialing. Through the NCC and FEMA, Verizon obtained the credentialing documentation needed to enable our technicians and other personnel to access the affected areas. State and local governments were not an obstacle in this event.
- *Coordination During and After a Disaster Event.*
 - Playbook/Access Checklist. See response for Hurricane Harvey above.
 - EOC Participation. Given the short duration and limited impact of this event, this was not an issue.
 - Licenses/Permits/Coordinating Access. There were no issues obtaining the necessary licenses and permits to engage in restoration activities and obtain access to the affected areas. Access to affected areas was coordinated via EOC participation and the notification systems described above.
 - Notification/Info Sharing Systems. Given the short duration and limited impact of this event, this was not an issue.
- *Creating Education Awareness Campaigns.*
 - Point of Contact Information. See response for Hurricane Harvey above.
 - Mock Exercises. See response for Hurricane Harvey above.
 - Public Information/Alerts. During and after the event we used social media to update customers on matters like network status, store openings and charging station and other mobile support locations. And Verizon broadcast three WEA alerts from the National Weather Service (“NWS”) to the counties designated by the NWS.

5. Hurricane Lane

Hurricane Lane had very little impact on Verizon’s network. A few of the Framework’s components were nonetheless relevant to our efforts.

- *Planning Before Disasters and Emergencies Occur.*
 - Waiving local restrictions. Verizon did not encounter local restrictions on access and restoration activities necessitating any sort of formal waiver.
 - Notification Systems. Verizon participated in NCC-coordinated activities and those of the Hawaii Emergency Management Agency headquarters at

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Diamondhead crater, which coordinates state and local disaster response activities in Hawaii.¹²

- Staging Areas. Due to the islands' geography, prepositioned physical and personnel assets at Verizon's existing facilities were already in close proximity to the affected coastal areas. Coordination with state and local authorities for staging areas was not needed.
- Credentialing. Through the NCC and FEMA, Verizon obtained the credentialing documentation needed to enable our technicians and other personnel to access the affected areas. State and local governments were good partners in this event.
- *Coordination During and After a Disaster Event.*
 - Playbook/Access Checklist. See response for Hurricane Harvey above.
 - EOC Participation. As noted above, Verizon supported the Hawaii Emergency Management Agency coordination efforts.
 - Licenses/Permits/Coordinating Access. There were no issues obtaining the necessary licenses and permits to engage in restoration activities and obtain access to the affected areas. Access to affected areas was coordinated via EOC participation and the notification systems described above.
 - Notification/Info Sharing Systems. As noted above, Verizon supported the Hawaii EMA activities.
- *Creating Education Awareness Campaigns.*
 - Point of Contact Information. See response for Hurricane Harvey above.
 - Mock Exercises. See response for Hurricane Harvey above.
 - Public Information/Alerts. During and after the event we used social media to update customers on matters like network status, store openings and charging station and other mobile support locations, and free service to affected customers in the affected area.¹³ And Verizon broadcast twenty WEA alerts from the National Weather Service ("NWS") to the areas designated by the NWS.

6. Hurricane Florence

- *Planning Before Disasters and Emergencies Occur.*
 - Waiving local restrictions. Verizon did not encounter local restrictions on access and restoration activities necessitating any sort of formal waiver.
 - Notification Systems. Per our standard practice for major disaster events such as this, we remained in contact with federal, state and local emergency

¹² See <http://dod.hawaii.gov/hiema/contact-us/about-us/>.

¹³ See <https://www.verizon.com/about/news/verizon-statement-california-wildfires-and-hurricane-lane-hawaii>

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management teams and coordinated communication needs and efforts with them.¹⁴

- Staging Areas. During Hurricane Florence, we moved many portable assets from other areas of the nation into staging areas in the Carolinas. For the most part Verizon was able to use our existing real estate (e.g. our local switch location) as our local staging areas.¹⁵
- Credentialing. Through the NCC and FEMA, Verizon obtained the credentialing documentation needed to enable our technicians and other personnel to access the affected areas; and we prepared to leverage other state and local credentialing resources as needed.¹⁶ State and local governments were good partners in this event.
- *Coordination During and After a Disaster Event.*
 - Playbook/Access Checklist. See response for Hurricane Harvey above.
 - EOC Participation. Per our standard practice for major disaster events such as this, we remained in contact with federal, state and local emergency management teams, including the local EOCs. In Florence, this included support for the Jacksonville Emergency Operations Center and Lumberton Emergency Operations Center.¹⁷
 - Licenses/Permits/Coordinating Access. There were no issues obtaining the necessary licenses and permits to engage in restoration activities and obtain access to the affected areas. Access to affected areas was coordinated via EOC participation and the notification systems described above.
 - Notification/Info Sharing Systems. See discussion above regarding Notification Systems and EOC Participation.
- *Creating Education Awareness Campaigns.*
 - Point of Contact Information. See response for Hurricane Harvey above.
 - Mock Exercises. See response for Hurricane Harvey above.
 - Public Information/Alerts. During and after the event we used social media to update customers on matters like network status, store openings and charging station and other mobile support locations, and the availability of free service to affected customers in the affected area. Verizon also provided public online updates of our recovery efforts. Verizon broadcast four WEA alerts from the National Weather Service (“NWS”) to the areas designated by the

¹⁴ See <https://www.verizon.com/about/news/hurricane-florence-network-updates>.

¹⁵ See <https://www.verizon.com/about/news/verizon-ready-serve-our-customers-community-hurricane-florence-threatens-us>.

¹⁶ See State of South Carolina, Office of the Governor, Executive Order No. 2018-27, *Temporary Suspension of Certain Motor Vehicle Regulations Due to Existing Emergencies in South Carolina and North Carolina* (Sept 8, 2018); <https://www.sccmd.org/recover/get-help/business-reentry/>.

¹⁷ See <https://www.verizon.com/about/news/hurricane-florence-network-updates>.

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NWS. Note that, beginning with Florence, we began to provide more granular and detailed information to consumers and government stakeholders in these reports, based on our experience in prior disaster events.¹⁸ This practice has been extended to other non-DIRS events, such as the recent California wildfires.¹⁹

7. Hurricane Michael

- *Planning Before Disasters and Emergencies Occur.*
 - Waiving local restrictions. Verizon did not encounter local restrictions on access and restoration activities necessitating any sort of formal waiver.
 - Notification Systems. Per our standard practice for major disaster events such as this, we remained in contact with federal, state and local emergency management teams and are coordinating communication needs and efforts with them.²⁰ Verizon and the Florida DMS have also established a practice of providing regularly-scheduled updates on cell site outages in different regions of the state.
 - Staging Areas. Assets previously assigned to the Carolinas were reassigned and staged throughout Florida, Georgia, South Carolina and North Carolina in anticipation of Hurricane Michael's arrival. Preparation activities also involved pre-arranging fuel deliveries, with fuel tankers poised and in position to quickly respond to hard-hit areas in case commercial power was lost.
 - Credentialing. Through the NCC and FEMA, Verizon obtained the credentialing documentation needed to enable our technicians and other personnel to access the affected areas; and we were prepared to leverage other state and local credentialing resources as needed. State and local governments were good partners in this event.
- *Coordination During and After a Disaster Event.*
 - Playbook/Access Checklist. See response for Hurricane Harvey above.
 - EOC Participation. While state-level EOCs are typically the industry's central resource for coordinating recovery efforts with local governments, given the storm's impact on Verizon's network (and our fiber provider's network) and the critical need for access and coordination with other stakeholders (like utilities), Verizon also sent network managers to county-level EOCs to provide them with an immediate point of contact at Verizon. We also cooperated closely with the Bay County EOC in particular in restoring its communications capability and in Verizon's efforts to coordinate recovery efforts with the electric utility and in maintaining communications service to

¹⁸ See <https://www.verizon.com/about/news/hurricane-florence-network-updates>.

¹⁹ See <https://www.verizon.com/about/news/california-wildfire-network-updates>.

²⁰ See <https://www.verizon.com/about/news/hurricane-michael-network-updates>.

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first responders in the affected area.²¹ These support efforts included deployment of portable cell site assets and Wi-Fi connectivity [BEGIN CONFIDENTIAL] [REDACTED] [END CONFIDENTIAL]

- Licenses/Permits/Coordinating Access. There were no issues obtaining the necessary licenses and permits to engage in restoration activities and obtain access to the affected areas. Access to affected areas was coordinated via EOC participation and the notification systems described above.
- Notification/Info Sharing Systems. As noted, Verizon and the Florida DMS have established a practice of providing regularly-scheduled updates on cell site outages in different regions of the state. See also the discussion above regarding Notification Systems and EOC Participation.
- *Creating Education Awareness Campaigns.*
 - Point of Contact Information. See response for Hurricane Harvey above.
 - Mock Exercises. See response for Hurricane Harvey above.
 - Public Information/Alerts. During and after the event we used social media to update customers on matters like network status, store openings and charging station and other mobile support locations, and the availability of free service to affected customers in the affected area. Verizon initiated a significant press and stakeholder education campaign to address the fiber damage that substantially hindered our recovery efforts. Verizon also provided public online updates of our recovery efforts.²² And Verizon broadcast over 30 WEA alerts from the National Weather Service (“NWS”) and local authorities to the designated areas.

Identify any situations in which Verizon did not implement the Framework (when both ESF-2 and DIRS were activated) and explain why.

As discussed above, Verizon implemented the Framework as applicable to the circumstances of each ESF-2/DIRS disaster event.²³

²¹ See <https://www.verizon.com/about/news/verizon-wireless-services-and-running-panhandle-dont-cut-fiber>.

²² See <https://www.verizon.com/about/news/hurricane-michael-network-updates>.

²³ The remaining Framework commitments—establishing a provider/PSAP point of contact database, improving consumer readiness and preparation, and providing DIRS information for the Commission to post online—are not ESF-2 dependent. Stakeholder work continues on establishing the database. Verizon *has* engaged in consumer readiness and preparedness efforts in advance of storms (as described above), outside the ESF-2 context, and through CTIA. See <https://www.ctia.org/consumer-resources/emergency-preparedness>; <https://www.verizon.com/about/news/staying-connected-hurricane-season-6-tips>; <https://www.verizon.com/about/news/winter-weather-storm-stella-emergency-preparation-contacts-and-safety-tips-verizon>; <https://www.verizon.com/about/news/emergency-preparation->

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Please contact Gregory Romano at (908) 559-6181 or Robert Morse at (202) 515-2444 if there are questions concerning this filing.

contacts-and-safety-tips-verizon. And Verizon supports and consented to the Commission's use of DIRS reports to provide online information.